

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 September 2005 (01.09.2005)

PCT

(10) International Publication Number
WO 2005/081010 A1

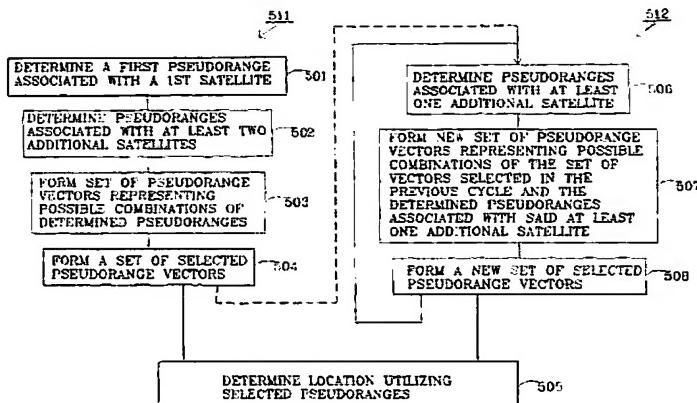
- (51) International Patent Classification⁷: G01S 1/00, 5/14 (74) Agent: MAGNUSSON, Monica; Ericsson AB, Patent Unit Radio Networks, S-164 80 Stockholm (SE).
- (21) International Application Number: PCT/SE2004/002050 (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PI, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 30 December 2004 (30.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/545,175 18 February 2004 (18.02.2004) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application: US 60/545,175 (CON)
Filed on 18 February 2004 (18.02.2004)
- (71) Applicant (*for all designated States except US*): TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) [SE/SE]; Torshamngatan 23, S-164 83 Stockholm (SE).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): KANGAS, Ari [SE/SE]; Skridskovgen 1, S-181 30 Lidingö (SE).
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,*

[Continued on next page]

(54) Title: METHOD AND ARRANGEMENTS RELATING TO SATELLITE-BASED POSITIONING



(57) Abstract: A method, an apparatus and a computer program for determining a location at which satellite ranging signals (RS1-RS4) have been received. At least one pseudorange selection cycle (511, 512), including an initial selection cycle (511), is performed and said location is determined utilizing the selected pseudoranges (1004). Said initial selection cycle includes: determining a first admissible pseudorange (r11) associated with a first satellite (SV1); determining (502) all pseudoranges (r21, r22, r31, r32) associated with at least two additional satellites (SV2, SV3) which combined with said first pseudorange (r11) form admissible relative pseudoranges; forming (503) a set (1001) of pseudorange vectors representing all possible combinations of said determined pseudoranges (r11, r21, r22, r31, r32) associated with said first (SV1) and at least two additional satellites (SV2, SV3); and forming (504) a set (1002) of selected pseudorange vectors by selecting at least one vector from said set (1001) of pseudorange vectors. At least when said set (1001) of pseudorange vectors includes plural vectors, said selecting includes evaluating each vector in said set (1001) of pseudorange vectors according to a predetermined rule.

WO 2005/081010 A1



EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA,
ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ,
NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT,
BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG)

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.